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DE PLANTIS TOXICARIIS E MUNDO NOVO TROPICALE COMMENTATIONES XII NOTES ON BIODYNAMIC PIPERACEOUS PLANTS

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Recent field work has served to corroborate the suspicion long held by botanists that the *Piperaceae* represent a family of plants of very basic importance in the ethnopharmacology of primitive societies of the New World tropics. The following notes are offered as a contribution to our growing knowledge of the use of piperaceous species for their variety of biodynamic activity.

Peperomia emarginella (Sw.) C. De Candolle, in DC. Prodr. 16, pt. 1 (1869) 437.

COLOMBIA: Comisaría del Putumayo, Mocoa and vicinity. December 8, 1942. *R. E. Schultes et C. E. Smith* 3028.

Called in the Ingano language *cungamanda-ambe*, this herb "pounded and mixed with tobacco and urine" is used "to poultice bites of the *cungamanda* ant".

Peperomia glabella (Sw.) A. Dietrich var. **melanostigma** Dahlstedt, in Kgl. Sv. Vet. Akad. Handl. 33, pt. 2 (1900) 122.

COLOMBIA: Comisaría del Putumayo, Mocoa and vicinity. Alt. 820 m. "For *mal de ojo*". December 6, 1942. *R. E. Schultes et C. E. Smith* 2059.

This herb is a supposed remedy for conjunctivitis. In the Ingano language of Mocoa, it is known as *tre-gwen* or *gwinan*.

Peperomia serpens (Sw.) Loudon, Hort. Brit. (1830) 13.

COLOMBIA: Comisaría del Putumayo, Río Sucumbios, Santa Rosa. "Remedy for bite of conga ant. Kofán name: *u-nu-sě'-hě-pa*". April 7-8, 1942. *R. E. Schultes* 3589.

The aromatic leaves and stems of *Peperomia serpens* are employed locally to relieve the irritant sting of the conga ant. In Kofán, the term *sě'-hě-pa* refers to a medicinal or poisonous plant.

Piper Allenii Trelease, in Ann. Mo. Bot. Gard. 25 (1938) 826.

PANAMA: Provincia del Darién, trail between Pinogana and Yavisa. Altitude about 15 m. March 17, 1937. *P. A. Allen* 270.

Allen reports that the "roots are used by Indians to deaden pain" and the leaves "as a snake bite remedy".

Piper auritum Humboldt, Bonpland et Kunth, Nov. Gen. et Sp. 1 (1815) 54.

EL SALVADOR: Vicinity of San Salvador. Altitude 650-850 m. February 2-7, 1922. *P. C. Standley* 20550.

According to Standley, the juice of the crushed leaves of this highly aromatic species is employed to remove ticks. The shrub is locally called *Santa María*.

Piper Bartlingianum C. De Candolle, in De Candolle Prodr. 16, pt. 1 (1869) 257.

DUTCH GUIANA: Fetikruk. On sandy hills. August 10, 1939. *Geykes sine num.*

The collector reports *Piper Bartlingianum* as an ingredient of "oerali poison" amongst the Wayana Indians.

Geykes sine num. appears to represent the same species as *A. C. Smith* 2826 and 2827 from British Guiana. It is said to be employed as one of the elements of Waiwai Indian arrow poison.

Piper dactylostigium Yuncker, in Inst. Bot. São Paulo Bol. No. 3, (1966) 35, fig. 29.

BRAZIL: Estado do Amazonas, Manáos and vicinity, Reserva Ducke. "Climber, adpressed to trunk of tree. Leaves and stem rapidly numb the tongue when chewed". April 13, 1972. *R. E. Schultes et W. Rodrigues* 26150.

The rapid, strong and long lasting numbness of the tongue produced when the leaves and stems of this species are chewed is well known to the inhabitants of the forested areas around Manáos. So far as could be ascertained, however, this property does not constitute the basis of any medicinal or other folk use of *Piper dactylostigium*. Numbing of the tongue and mucous membranes of the mouth, which, though not common, is known for other species of the genus, sometimes leads to local medicinal use. The leaves and twigs of *Piper corcovadensis* (Miq.) DC. and *P. Jaborandi* Vell., for example, are chewed in the region of Rio de Janeiro to relieve toothache because of their strong numbing effect (Mors, W. B. and C. T. Rizini: *Useful plants of Brazil* (1966) 89).

Piper erythroxyloides R. E. Schultes et García-Barriga sp. nov.

Frutex glaber, usque ad 1½ ped. altus, erectus. Rami simplices vel pauce ramificati, internodiis superioribus sat gracilibus elongatisque, subgranulosis, glabris, 4.5-6 cm. longis. Folia membranacea, elliptica, apice acuminata, basi aequilater subrotundata, 14-18 cm. longa, 6-8.5 cm. lata, omnino pinnatim venosa, venis primariis glabris, utrinque 8-10, supra glabra, subtus minute punctulosa et irregulariter albo-squamulosa; petiolo subcarnosulo, usque ad 1 cm. longo, longitudinaliter striato, scobiculato. Pendunculus subcarnosulus, usque ad 1 cm. longus, glabrus vel minutissime albido-papilloso-pilosus, bracteis crassis, suborbicularibus, cupulatisque, plus minusve 1 mm. longis. Drupa carnosa, extus papillosa, conica, 2 mm. in diametro, 1 mm. longa, in stylum crassum, 0.75 mm. longum desinens.

COLOMBIA: Departamento de Santander del Norte, La Motilonia, Río Catatumbo y Río Brandy. Altitude 80 m. "0.5 m. alto, erecto. Amentos verde-oscuros. Al masticar el tallo se le siente un piquante fuerte y luego se duerme la lengua y los labios. Los indios barí (motilones) lo mastican frecuentemente como la coca. Por lo tanto es narcótico". May 24-26, 1965. *Hernando García-Barriga et Gustavo Lozano-C* 18414. TYPUS in Herb. Nac. Colomb.; TYPUS DUPLICATUS in Econ. Herb. Oakes Ames.

Piper erythroxyloides appears to be most closely allied to *P. dariense* C. DC. of northern Colombia and Panama. It differs in various important respects. The leaves of *Piper erythroxyloides* are basally rounded and apically short acuminate, with a blunt tip (not cuneate and long acuminate with a sharp tip); the internodes are not so slender and are somewhat longer; the inflorescence is usually longer, and thicker; the flowers are more congested, not loosely arranged; the style is thicker; and the stigmas are relatively longer. Perhaps the most noticeable difference lies in the shape of the drupe: in *Piper erythroxyloides*, the fruit is conic and rough-papillose, whereas in *P. dariense* it is globose-tetragonous and either smooth or obscurely papillose.

According to García-Barriga and Lozano, the stems of *Piper erythroxyloides* are chewed by the Motilone (Barí) Indians as a kind of narcotic which has local effects in the mouth that resemble those of coca: whence the specific name *erythroxyloides*. Upon mastication, the stems induce a strong burning sensation which is followed by numbness of the tongue and lips.

In addition to this use, the plant is chewed in the belief that it prevents dental caries.

Local Indian names of *Piper erythroxyloides* are *achikaira* and *chanquira*.

It is of interest to note that in February, 1971, Mr. Alfred M. Ajami of Harvard University submitted to the Botanical Museum several internodes of what appear, so far as such

incomplete material can indicate, to represent the same species: *Piper erythroxyloides*. According to Mr. Ajami, the Barí Indians of the central Venezuelan region west of Lake Maracaibo, who chew the internodes as an aphrodisiac, experience a strong analgesic effect in the mouth and conspicuous dilation of the pupils. Inasmuch as the tribe is apparently the same group as the Colombian "Motilones" and the two localities are not distant, the information communicated by Mr. Ajami assumes greater significance. It is hoped that complete botanical specimens from the Venezuelan locality may be forthcoming.

Piper hispidum Swartz, Prodr. Veg. Ind. Occ. (1788) 15.

ECUADOR: Parroquia Concepción, Playa Rica. Altitude 91 m. "Forest near stream; undergrowth. Perennial herb 4 m. high; aments erect. Common". December 6, 1936. *Y. Mexia* 8407.

The collector reports that the leaves of this plant are "crushed in water to kill head lice". It is locally known as *pipilongo*. This collection is the type of *Piper pediculicidum* Trelease.

Piper cf. interitum Trelease ex Macbride, in Field Mus. Publ. Bot. 13, no. 357 (1936) 176.

PERU: Departamento de Loreto, alto Río Purús, Zapote. "Culina Indian name: *tetsi*. Substitute of tobacco snuff. The leaves are dried and reduced into powders. Tree about 10 m. high. Lowland forest". October 15, 1968. *Laurent Rivier* 21.

This interesting report of the preparation of a snuff from the leaves of a species of *Piper* — a snuff used as a "substitute" for tobacco — provides a significant addition to our growing understanding of plants employed in South America in the preparation of powders for inhalation. The number of species utilized is much larger than has been suspected, and, in this case, the indication of psychoactive constituents — probably essential oils — adds to the ethnopharmacological interest of the report.

Piper sp.

BRAZIL: Estado do Amazonas, Rio Livramento, Humaytá, near Livramento. October 12-November 6, 1934. *B. A. Krukoff* 6972.

The stem of this vine-like species of *Piper*, according to the collector's notes, contains "a substance producing local anaesthesia". The plant is employed locally by the Indians "to cure toothache" and is called *cipó de dor dente* ("toothache vine").

Pothomorphe umbellata (L.) Miquel, Comm. Phyt. (1840) 36.

COLOMBIA: Comisaría del Putumayo, Río Guamués, San Antonio. Secondary growth near path. "Kofán Indian name: *a-nama-he sě'-hě-pa*. Curare, used alone or mixed; for monkeys and wild pigs (saquita). Bark of lower stem and root is scraped, then boiled. Herb 5-6 feet". September 5, 1966, *H. V. Pinkley* 421. Same locality. February 18, 1966, *Pinkley* 119.

The preparation of arrow poisons amongst the Kofán Indians of the border region of Colombia and Ecuador is ethnobotanically extremely complex. Although piperaceous plants are known to be employed as ingredients of arrow-poisons over a wide area in tropical America (Hegnauer, R.: *Chemotaxonomie der Pflanzen* 5:321. 1969), Pinkley's report of the utilization of *Pothomorphe umbellata* "alone or mixed" assumes special significance. Most, if not all, of the piperaceous species employed in these preparations are not known to have curare constituents, and their use as additives may be based on superstition or symbolism. If a species be utilized "alone" — that is, as the only ingredient in a curare — it must have a biodynamically active constituent.